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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,216	11/08/2001	Jin Lu	US 010560	2170

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EXAMINER	
OSORIO, RICARDO	
ART UNIT	**PAPER NUMBER**
2673	

DATE MAILED: 09/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/008,216	LU, JIN	
	Examiner	Art Unit	
	RICARDO L OSORIO	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8, 10-17 and 19-20* is/are rejected.

7)☒ Claim(s) *9 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5, 6, 8, 10-12, 14, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillespie et al (5,880,441) in view of Tokioka et al (6,255,604).

Regarding claims 1 and 19, Gillespie teaches of a multi-point touch pad (Fig. 1, reference character 6, and col. 9, line 3-col. 52, line 35), comprising: a touch layer having a top surface and a bottom surface (Fig. 2D, reference character 36) and a plurality of pressure sensing devices (Fig. 2D, reference character 34) coupled to the bottom surface of the touch layer (col. 11, lines 28-34) such that touch pressure applied to the top surface will impart pressure to the pressure sensing devices near the location of the touch pressure (col. 9, lines 5-14 and col. 11, lines 58-65); a processor coupled to each pressure sensing device (Fig. 1, reference characters 16, 18 and 20 combined, col. 19, lines 30-34 and col. 20, line 63-col. 21, line 8) constructed to calculate locations of at least two points on the top surface being touched (col. 5, lines 49-51, and col. 27, lines 26-46. Note that (Xold, Yold) is a first point and (Xcur, Ycur) is a second point), based on pressure sensing readings form the pressure sensing devices (col. 9, lines 16-22).

However, Gillespie does not specifically teach of calculating locations of at least two points simultaneously touched.

Tokioka teaches of calculating locations of at least two points simultaneously touched (col. 13, lines 12-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to calculate the simultaneous touch, as taught by Tokioka, in the device of Gillespie to realize a coordinate input device with an improved resolving power of calculation and to enable simultaneous inputs of two points without any addition of complex components (see Tokioka, col. 17, lines 19-20 and 32-34).

Regarding claim 2, Gillespie teaches of the processor being also constructed to calculate the pressure applied at each point being touched (col. 5, lines 51-52 and col. 9, lines 16-19).

Regarding claim 3, Gillespie teaches each of the pressure sensing devices comprise capacitive touch sensors (col. 10, lines 13-17).

Regarding claim 5, Gillespie teaches of the processor being a digital signal processor (Fig. 1, reference characters 16, 18 and 20 combined, col. 19, lines 19-34 and col. 20, line 63-col. 21, line 8. A microprocessor is a CPU, and a CPU is a digital signal processor).

Regarding claim 6, Gillespie teaches that the pressure sensors are arranged in a matrix (Fig. 2C, reference character 22).

Regarding claim 8, Gillespie teaches that the processor (Fig. 1, reference characters 16, 18 and 20 combined) is constructed to perform the following algorithm:

a. sampling the pressure sensing signals from a plurality of pressure sensing devices (col. 13, lines 45-56);

b. calculating locations of single or multiple touches on the touch pad (col. 5, lines 49-51, col. 14, lines 29-37 and col. 27, lines 26-46);

c. calculating the amount of pressure exerted on each touch on the touch pad (col. 5, lines 51-52 and col. 9, lines 16-19).

d. outputting calculation data (col. 9, lines 20-22).

Regarding claim 10, Gillespie teaches of a method of controlling an application (col. 27, lines 42) with a touch pad (Fig. 1, reference character 6, and col. 9, line 3-col. 52, line 35), comprising the steps of:

providing a touch pad (Fig. 1, reference character 6) having a touch surface with a bottom and a top (Fig. 2D, reference character 36) and a plurality of pressure sensors arranged under the touch surface and coupled to the bottom of the touch surface (Fig. 2D, reference character 34 and col. 11, lines 28-34);

touching the top of the touch surface at least two points (col. 5, lines 49-51, and col. 27, lines 26-46); sending a signal to a processor (Fig. 1, reference characters 16, 18 and 20 combined, col. 19, lines 30-34 and col. 20, line 63-col. 21, line 8) corresponding to the pressure at each sensor (col. 9, lines 15-19 and col. 11, lines 28-34);

performing an algorithm to determine the location of the at least two touch points (col. 5, lines 49-51, and col. 27, lines 26-46. Note that (Xold, Yold) is a first point and (Xcur, Ycur) is a second point) based on comparing the pressure at each of the sensors (col. 9, lines 16-22). However, Gillespie does not specifically teach of calculating locations of at least two points simultaneously touched.

Tokioka teaches of calculating locations of at least two points simultaneously touched (col. 13, lines 12-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to calculate the simultaneous touch, as taught by Tokioka, in the device of Gillespie to realize a coordinate input device with an improved resolving power of calculation and to enable simultaneous inputs of two points without any addition of complex components (see Tokioka, col. 17, lines 19-20 and 32-34).

Regarding claim 11, Gillespie further teaches of calculating the pressure applied at each point being touched (col. 5, lines 51-52 and col. 9, lines 16-19).

Regarding claim 12, Gillespie teaches of the pressure sensing device comprising capacitive touch sensors (col. 10, lines 13-17).

Regarding claim 14, Gillespie teaches of the processor being a digital signal processor (Fig. 1, reference characters 16, 18 and 20 combined, col. 19, lines 19-34 and col. 20, line 63-col. 21, line 8. A microprocessor is a CPU, and a CPU is a digital signal processor).

Regarding claim 15, Gillespie teaches that the pressure sensors are arranged in a matrix (Fig. 2C, reference character 22).

2. Claims 4, 7, 13, 16, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillespie in view of Tokioka as applied to claims 1-3, 5, 6, 8, 10-12, 14, 15 and 19 above, and further in view of Bisset et al (5,825,352).

Regarding claims 4 and 20, Gillespie teaches of the pressure sensing device comprising a capacitive touch sensor array (Fig. 2C, reference character 22).

However, Gillespie, as anticipated by Tokioka, fails to teach of the pressure sensing devices comprising strain gauges that sense a change in resistance at a touch point and transmit it through sensor wires.

Bisset teaches of a touch sensor pad (Fig. 1, reference character 20) that has a pressure sensing device comprising, as an alternative, strain gauges that sense a change in resistance at a touch point and transmit it through sensor wires. (col. 1, lines 18-28 and col. 2, 18-23). This is how strain gauges typically work.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the strain gauges, as taught by Bisset, in the device of Gillespie because strain gauges are among many types of conventional touch sensing devices that can be used alternatively and interchangeably, such as capacitive, resistive, surface acoustic, touch sensors

based on strain gauges or pressure sensors, and optical sensors (see col. 1, lines 18-28 and col. 2, lines 18-23).

Regarding claim 7, Gillespie teaches that the sensors are arranged in a matrix (Fig. 2C, reference character 22).

Regarding claim 13, Gillespie teaches of the pressure sensing device comprising a capacitive touch sensor array (Fig. 2C, reference character 22).
However, Gillespie, as anticipated by Tokioka, fails to teach of the pressure sensing device comprising strain gauges.
Bisset teaches of a touch sensor pad (Fig. 1, reference character 20) that has a pressure sensing device comprising, as an alternative, strain gauges (col. 1, lines 18-26 and col. 2, 18-23).
Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the strain gauges, as taught by Bisset, in the device of Gillespie because strain gauges are among many types of conventional touch sensing devices that can be used as alternatively and interchangeably, such as capacitive, resistive, surface acoustic, touch sensors based on strain gauges or pressure sensors, and optical sensors (see col. 1, lines 18-28 and col. 2, lines 18-23).

Regarding claim 16, Regarding claim 7, Gillespie teaches that the sensors are arranged in a matrix (Fig. 2C, reference character 22).

Regarding claim 17, Gillespie teaches that the processor (Fig. 1, reference characters 16, 18 and 20 combined) performs an algorithm comprising the steps of:

a. sampling the signals from a plurality of pressure sensing devices (col. 13, lines 45-56);

b. calculating locations of single or multiple touches on the touch pad (col. Col. 5, lines 49-51, col. 14, lines 29-37 and col. 27, lines 26-46);

c. calculating the amount of pressure exerted on each touch on the touch pad (col. 5, lines 51-52 and col. 9, lines 16-19).

d. outputting calculation data from the algorithm to control the application (col. 9, lines 20-22).

However, Gillespie fails to teach that the pressure sensing devices are strain gauges.

Bisset teaches of a touch sensor pad (Fig. 1, reference character 20) that has a pressure sensing device comprising, as an alternative, strain gauges (col. 1, lines 18-26 and col. 2, 18-23).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the strain gauges, as taught by Bisset, in the device of Gillespie because strain gauges are among many types of conventional touch sensing devices that can be used alternatively and interchangeably, such as capacitive, resistive, surface acoustic, touch sensors based on strain gauges or pressure sensors, and optical sensors (see col. 1, lines 18-28 and col. 2, lines 18-23).

Allowable Subject Matter

3. Claims 9 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: Claims 9 and 18 are allowable since certain key features of the claimed invention are not taught or fairly suggested by the prior art. Specifically, the formula as claimed, in claims 9, page 4, lines 14-16, and claim 18, page 7, lines 11-14. The closest prior art, Gillespie et al. (5,880,411) teaches of formulas to implement finger position and motion, however, Gillespie either singularly or in combination with other prior art, fails to anticipate or render said formula obvious.

Response to Arguments

4. Applicant's arguments filed 6-21-2004 have been fully considered but they are not persuasive.

Gillespie and Tokioka are analogous art since they both calculate the location of at least two points on the touch surface. Also, Tokioka teaches of calculating the locations of at least two points simultaneously touched (col. 13, lines 12-44).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ricardo L. Osorio whose telephone number is 703 305-2248. The examiner can normally be reached on Monday through Thursday from 7:00 A.M. to 5:30 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala whose telephone number is 703 305-4938.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

703 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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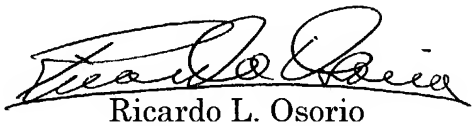

Ricardo L. Osorio
Examiner
Art Unit: 2673

RLO
August 30, 2004